REMARKS

Applicants amend claims 7 and 13 to more appropriately define the claimed subject matter and to correct informalities. Claims 1-14, 17, and 18 are pending in this application.

Allowed Claims 1-6, 14, 17, and 18

Applicants thank the Examiner for indicating that claims 1-6, 14, 17, and 18 are allowable.

Objected-to Claim 9

Applicants also thank the Examiner for indicating that claim 9 is objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

§ 102(b) Rejection of Claims 7, 8, 10, 11, and 13 over *Seki et al.*

Applicants respectfully traverse the rejection of claims 7, 8, 10, 11, and 13 under 35 U.S.C. § 102(b) as unpatentable over U.S. Patent No. 5,694,389 to Seki et al. ("*Seki et al.*"). To properly anticipate Applicants' claims under 35 U.S.C. § 102, each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. *See* M.P.E.P. § 2131.

Seki et al. fails to anticipate claims 7, 8, 10, 11, and 13 because *Seki et al.* does not teach each and every element of independent claim 7, from which claims 8, 10, 11, and 13 depend. For example, *Seki et al.* fails to teach or suggest a "digital broadcast receiving apparatus for receiving a broadcast signal generated by combining a main

signal . . . and sub signals comprising a transmission control signal modulated using a predetermined random sequence and for reproducing said information source data contained in the received broadcast signal, the transmission control signal comprising control information," as recited in claim 7 (emphasis added).

Seki et al. discloses, "FIG. 17 shows one embodiment of an OFDM transmitting apparatus which transfers operation parameters as independent data by [a] frequency reference symbol that has a plurality of carrier arrangement patterns" (col. 11, lines 57-60). *Seki et al.* further discloses, "FIG. 18 exemplifies an OFDM [(orthogonal frequency division multiplexing)] receiving apparatus which is associated with the OFDM transmitting apparatus that transfer the operation parameters as independent data and which restores independent data" (col. 12, lines 12-13). "FIG. 3 shows the spectrum of a frequency reference symbol in an OFDM transmission system" (col. 4, lines 58-59). "[O]ne OFDM symbol consists of N carrier positions among which n carrier positions are effective carrier positions. Of the effective carrier positions, middle m carrier positions are frequency reference carrier positions for frequency references. With respect to the m frequency reference carrier positions, carries [*sic*] are arranged in a pattern of an M sequence, for example, by using this M sequence as a PN (Pseudo Noise) code. More specifically, no carriers are present when the code is '0' and carriers are present when the code is '1.'" (Col. 4, line 60 to col. 5, line 3.)

However, an OFDM receiving apparatus that receives a frequency reference symbol consisting of M carrier positions, the M carrier positions being arranged in a sequence pattern corresponding to a PN code, does not constitute a "digital broadcast receiving apparatus for receiving a broadcast signal generated by combining a main

signal . . . and sub signals comprising a transmission control signal modulated using a predetermined random sequence," as recited in claim 7 (emphasis added). The frequency reference symbol of *Seki et al.* has a carrier arrangement pattern that corresponds to the PN code. However, arranging the carrier frequencies of the frequency reference symbol in frequency space does not constitute "modulating" a signal using a predetermined random sequence," as required by claim 7 (emphasis added). For example, there is not any disclosure in *Seki et al.* that the frequency reference symbol is modulated using a PN code at any of the M carrier frequencies.

Thus, since *Seki et al.* does not disclose each and every limitation of claim 7, claim 7 and claims 8, 10, 11, and 13, which depend from claim 7, are allowable over *Seki et al.*

§103(a) Rejection of Claim 12 over *Seki et al.* and *Alamouti et al.*

Applicants respectfully traverse the rejection of claim 12 under 35 U.S.C. § 103(a) as unpatentable over *Seki et al.* in view of U.S. Patent No. 6,600,776 to Alamouti et al. ("*Alamouti et al.*").

To establish a *prima facie* case of obviousness under § 103, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Moreover, both of these requirements must be found in the prior art, not in applicant's disclosure. Finally, the prior art reference (or

references when combined) must teach or suggest all the claim limitations. MPEP § 2143 (8th ed., Rev. 4, October 2005).

Claim 12 is allowable over *Seki et al.* because *Seki et al.* fails to teach or suggest each and every element of independent claim 7, from which claim 12 depends. For example, *Seki et al.* does not teach or suggest a "digital broadcast receiving apparatus for receiving a broadcast signal generated by combining a main signal . . . and sub signals comprising a transmission control signal modulated using a predetermined random sequence and for reproducing said information source data contained in the received broadcast signal, the transmission control signal comprising control information," as recited in claim 7. As explained above, an OFDM receiving apparatus that receives a frequency reference symbol consisting of M carrier positions, the M carrier positions being arranged in a sequence pattern corresponding to a PN code, does not constitute a "digital broadcast receiving apparatus for receiving a broadcast signal generated by combining a main signal . . . and sub signals comprising a transmission control signal modulated using a predetermined random sequence," as required by claim 7.

Alamouti et al. does not make up for the deficiencies of *Seki et al.* because *Alamouti et al.* also fails to teach or suggest a "digital broadcast receiving apparatus for receiving a broadcast signal generated by combining a main signal . . . and sub signals comprising a transmission control signal modulated using a predetermined random sequence and for reproducing said information source data contained in the received broadcast signal, the transmission control signal comprising control information," as recited in claim 7.

Alamouti et al. discloses a wireless discrete multitone spread spectrum communications system (Abstract). "As shown in FIG. 8, a signal . . . is supplied from a communication link[,] . . . packetized[,] . . . quadrature amplitude modulation (QAM) encoded and error encoded[,] . . . [and] then spread over a portion of the frequency band" (col. 23, lines 2-26). "[T]he DMT-SS [(Discrete Multitone Spread Spectrum)] spreading technique is used to spread the encoded signal over several frequency tones within the total frequency spectrum" (col. 23, lines 27-30). "For example, consider a set of carriers (called a tone set) that includes four tones. A serial data stream is then divided into four parallel data streams by taking every fourth symbol and assigning it to a particular one of the tones" (col. 23, lines 44-47). "A PN code method of implementing such a modulation scheme, is depicted in FIG. 9" (col. 23, lines 59-60). "[S]elected tones within each tone set can be designated as pilots distributed throughout the frequency band [such that] a simple evaluation of a finite number of complex values results in an accurate channel estimation" (col. 26, lines 20-23). "In one embodiment of the present invention, during the traffic establishment phase, a series of pilot tones having known amplitudes and phases, are transmitted over the entire frequency spectrum. The pilot tones are at a known level (e.g., 0 dB), and are spaced apart by approximately 30 KHz to provide an accurate representation of the channel response (i.e., the amplitude and phase distortion introduced by the communication channel characteristics) over the entire transmission band" (col. 32, lines 8-13).

However, none of the pilot tones of *Alamouti et al.* constitute a "transmission control signal modulated using a predetermined random sequence and for reproducing said information source data contained in the received broadcast signal, the

transmission control signal comprising control information," as recited in claim 7 (emphasis added). For example, the pilot tones of *Alamouti et al.* do not comprise any "control information" (emphasis added). Rather, each pilot tone is simply a tone at a known amplitude and phase that is transmitted to provide an accurate representation of the distortion introduced by the communication channel. A mere tone at a known amplitude and phase does not contain the "control information" required by claim 7.

Thus, *Seki et al.* and *Alamouti et al.* do not teach or suggest, alone or in combination, each and every limitation of independent claim 7, claim 12, which depends from claim 7, is allowable over *Seki et al.* and *Alamouti et al.*

CONCLUSION

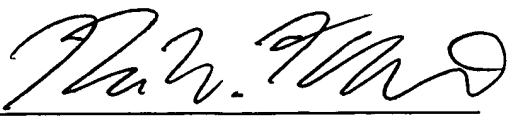
In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: March 15, 2007

By: 
Reece Nienstadt
Reg. No. 52,072